2458-4042 PC Morry

# **PATENT COOPERATION TREATY**

NTERNATIONAL PRELIMINARY E	XAMINING AUTHORI	ΓY	
To: EUGENE MOROZ MORGAN & FINNEGAN, L.L.P. 345 PARK AVENUE NEW YORK, NY 10154			PCT
		NOTIFICATION OF RECEIPT OF DEMAND BY COMPETENT INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY	
	· •	(PCT Rule and Admini	es 59.3(e) and 61.1(b), first sentence strative Instructions, Section 601(a))
		Date of mailing (day/month/year)	<b>08</b> JUN 2001
Applicant's or agent's file reference 2458-4042PG	2	ІМІ	PORTANT NOTIFICATION
International application No.	International filing date (	day'month'year)	Priority date (day/month/year)
PCT/US00/17540	26 JU		25 JUN 99
GENAISSANCE PHARMACEUT	CALS, INC.		
The applicant is hereby notified the of receipt of the demand for interrupt.		nation of the internation	hority considers the following date as the date and application:
	25	Januar	<u>4</u> 200(
2. That date of regeipt is:	4		
the actual date of rec	eipt of the demand by this		
	his Authority has, in resived the required correction		on to correct defects in the demand (Form
election(s) made in the dema from the priority date (or lat	nd does (do) not have the offices (Articonths from the priority dates)	effect of postponing the 19(1). Therefore, (	hs from the priority date. Consequently, the entry into the national phase until 30 months he acts for entry into the national phase must lices) (Article 22). For details, see the <i>PCT</i>
(If applicable) This n	otification confirms the inf	ormation given by tele	phone, facsimile transmission or in person on:
4. Only where paragraph 3 applies, a	copy of this notification	has been sent to the Ir	nemational Bureau.
Name and mailing address of the IPEA/		Authorized officer	00 . 100
Assistant Comnissioner for Patent		Melvin S. Broo	ks Sr. O. Russell gor
Box PCT Washington, D.C. 20231 Attn:RO/US		Talanhona No. 303	$\nu$
Facsimile No. 703-305-3230 orm PCT/IPEA/402 (July 1998)		Telephone No. 703-	50.50103

### PATENT COOPERATION TREATY

2458-4042 PC Morry

From the INTERNATIONAL SEARCHING AUTHORITY

To: EUGENE MOROZ  MORGAN & FINNEGAN, L.L.P.  345 PARK AVENUE	PCT
NEW YORK, NEW YORK 10154  CASE 2458-4042 PC ATTY MSM	NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT OR THE DECLARATION
DUE May 33, 2001 (U.S. Suppl. ID 1 mo. call-up Upril 33, 2001	
ву Д.М	Date of Mailing (day/month/year) 23 FEB 2001
Applicant's or agent's file reference	FOR FURTHER ACTION See paragraphs 1 and 4 below
International application No. PCT/US00/17540	International filing date (day/month/year) 26 JUNE 2000
Applicant GENAISSANCE PHARMACEUTICALS, INC.	
Filing of amendments and statement under Artic	al search report has been established and is transmitted herewith. le 19: the claims of the international application (see Rule 46):
	ents is normally 2 months from the date of transmittal of the more details, see the notes on the accompanying sheet.
Winere? Directly to the International Bureau of S 34, chemin des Colombet 1211 Geneva 20, Switzer Facsimile No.: (41-22) 74	tes CASE 477 772 PC ATTY and co.14.55 DUE 4pril 23, 2001 (Art.19
For more detailed instructions, see the notes on	the accompanying sheets. call-up Merch 23 2000
2. The applicant is hereby notified that no international Article 17(2)(a) to that effect is transmitted herewith	I search report will be established and that the declaration under n.
S. With regard to the protest against payment of (an	additional fee(s) under Rule 40.2, the applicant is notified that:
	has been transmitted to the International Bureau together with of both the protest and the decision thereon to the designated
	; the applicant will be notified as soon as a decision is made.
If the applicant wishes to avoid or postpone publication	ational application will be published by the International Bureau.  n. a notice of withdrawal of the international application, or of the provided in rules 90 bis 1 and 90 bis 3, respectively, before the
	ternational preliminary examination must be filed if the applicant ntil 30 months from the priority date (in some Offices even later).
	nust perform the prescribed acts for entry into the national phase ed in the demand or in a later election within 19 months from the not bound by Chapter II.
Name and mailing address of the ISA/US	Authorized officer
Commissioner of Patents and Trademarks Box PCT	MARIANNE PALLEN  MARIANNE PALLEN  Telephone No. (708) \$88-0196
Washington, D.C. 20231 Facsimile No. (703) 305-3230	Telephone No. (703) \$08-0196

### PATENT COOPERATION TREATY

#### From the INTERNATIONAL SEARCHING AUTHORITY

To: EUGENE MOROZ MORGAN & FINNEGAN, LLP. 345 PARK AVENUE	PCT	
NEW YORK, NEW YORK 10154	NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT OR THE DECLARATION	
	(PCT Rule 44.1)	
	Date of Mailing (day/month/year) 23 FEB 2001	
Applicant's or agent's file reference 2458-4042PC	FOR FURTHER ACTION See paragraphs 1 and 4 below	
International application No.	International filing date (day/month/year)	
PCT/US00/17540	26 JUNE 2000	
Applicant GENAISSANCE PHARMACEUTICALS, INC.		
1. X The applicant is hereby notified that the internation	al search report has been established and is transmitted herewith.	
Filing of amendments and statement under Artic The applicant is entitled, if he so wishes, to amend	le 19: the claims of the international application (see Rule 46):	
When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the international search report; however, for more details, see the notes on the accompanying sheet.		
Where? Directly to the International Bureau of WIPO  54, chemin des Colombettes  1211 Geneva 20, Switzerland  Facsimile No.: (41-22) 740.14.55		
For more detailed instructions, see the notes or	the accompanying sheet.	
2. The applicant is hereby notified that no internations Article 17(2)(a) to that effect is transmitted herewith	d search report will be established and that the declaration under h.	
3. With regard to the protest against payment of (an	) additional fee(s) under Rule 40.2, the applicant is notified that:	
the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.		
no decision has been made yet on the protest	; the applicant will be notified as soon as a decision is made.	
4. Further action(s): The applicant is reminded of the fo	llowing:	
If the applicant wishes to avoid or postpone publication	national application will be published by the International Bureau.  In, a notice of withdrawal of the international application, or of the sprovided in rules 90 bis 1 and 90 bis 3, respectively, before the publication.	
	ternational preliminary examination must be filed if the applicant ntil 30 months from the priority date (in some Offices even later).	
	nust perform the prescribed acts for entry into the national phase ted in the demand or in a later election within 19 months from the not bound by Chapter II.	
Name and mailing address of the ISA/US	Authorized officer	
Commissioner of Patents and Trademarks	MARNANNE P.ALLEN	

Facsimile No. (703) 305-3230
Form PCT/ISA/220 (July 1998)\*

Box PCT Washington, D.C. 20231

(See notes on accompanying sheet)

### PATENT COOPERATION TREATY

# **PCT**

### INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 2458-4042PC		see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No.	International filing date (day/month/year)	(Earliest) Priority Date (day/month/year)	
PCT/US00/17540	26 JUNE 2000	25 JUNE 1999	
Applicant GENAISSANCE PHARMACEUTICALS, INC.			
according to Article 18. A copy is bein	en prepared by this International Searching Aug transmitted to the International Bureau.	thority and is transmitted to the applicant	
This international search report consis	ts of a total of sheets.		
l ——	copy of each prior art document cited in this	report.	
1. Basis of the report			
	the international search was carried out on the l unless otherwise indicated under this item.	pasis of the international application in the	
	s carried out on the basis of a translation of th	e international application furnished to this	
b. With regard to any nucleotide was carried out on the basis of	and/or amino acid sequence disclosed in the in f the sequence listing:	nternational application, the international search	
contained in the internation	al application in written form.		
filed together with the inte	rnational application in computer readable for	·m.	
1 -	his Authority in written form.		
furnished subsequently to the	his Authority in computer readable form.		
the statement that the subs	equently furnished written sequence listing d	oes not go beyond the disclosure in	
the statement that the information furnished.	ation recorded in computer readable form is ide	ntical to the written sequence listing has been	
2. Certain claims were found	d unsearchable (See Box I).		
3. X Unity of invention is lack	ing (See Box II).		
4. With regard to the title,			
X the text is approved as sub	mitted by the applicant.	·	
the text has been established	ed by this Authority to read as follows:		
5. With regard to the abstract,			
X the text is approved as sub	omitted by the applicant.		
the text has been established	ed, according to Rule 38.2(b), by this Authoric, within one month from the date of mailing of		
6. The figure of the drawings to be 1	published with the abstract is Figure No		
as suggested by the application	ant.	X None of the figures.	
because the applicant failed	i to suggest a figure.		
because this figure better of	characterizes the invention.		

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)
This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:
1. Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
Claims Nos.:  because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
S. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).
Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)
This International Searching Authority found multiple inventions in this international application, as follows:
Please See Extra Sheet.
1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. X As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:  1-21,30-55,35,45-51,55-58,69-78,83-84,86,94-102,104-109,120-129,134-135,137,145-153,155-160,171-183
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
Remark on Protest  The additional search fees were accompanied by the applicant's protest.  No protest accompanied the payment of additional search fees.

Y US 5,874,256 A (BERTINA ET AL) 23 February 1999 (23-02-99), see in particular abstract and claims.  1-21,30-33, 35,43 51,53-58,69 78,83-84,86,94 102,104-109,120 1 2 9 , 1 3 4 135,137,145				
Minitum documentation searched (classification system followed by classification symbols)  U.S.: 346/418, 981; 708/10, 80; 707/100, 102, 104  Documentation searched other than minimum documentation to the extent that such documents are included in the fields researched states base consulted during the international search (name of data base and, where practicable, search terms used)  Please See Extra Sheet.  C. DOCUMENTS CONSIDERED TO BE RELEVANT  Category* Citation of document, with indication, where appropriate, of the relevant passages  Y. US 5,874,256 A (BERTINA ET AL) 23 February 1999 (23-02-99), see in particular abstract and claims.  See in particular abstract and claims.  See in particular abstract and claims.  See patent family annex.  For excitations of other documents are listed in the continuation of Box C. See patent family annex.  See patent family a	IPC(7) :G08F 7/00, 17/00; G0 US CL :545/418, 961; 702/19,	01N 33/48, 33/50; G06T 1/0 20; 707/100, 102, 104		
Minimum documentation searched (classification system followed by classification symbols)  U.S.: 345/418, 981; 708/19, 80; 707/100, 102, 104  Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  Please See Extra Sheet.  C. DOCUMENTS CONSIDERED TO BE RELEVANT  Category*  Citation of document, with indication, where appropriate, of the relevant passages  Relevant to claim No see in particular abstract and claims.  Y. US 5,874,256 A (BERTINA ET AL) 23 February 1999 (23-02-99), 1-21,30-33, 35,43 51,53-58,69 78,83-84,856,94 102,104-109,120 12 9, 1 3 4 135,137,145 153,155-160,171 183    Variable of the second of the following of the second	<del></del>	Classification (IPC) or to both	h national classification and IPC	
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  Please See Extra Sheet.  C. DOCUMENTS CONSIDERED TO BE RELEVANT  Category*  Citation of document, with indication, where appropriate, of the relevant passages  Relevant to claim No  See in particular abstract and claims.  Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  Please See Extra Sheet.  To describe the search of the sear		(-):Gi	d be also for single and also	
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  Please See Extra Sheet.  C. DOCUMENTS CONSIDERED TO BE RELEVANT  Category* Citation of document, with indication, where appropriate, of the relevant passages  Y. US 5,874,256 A (BERTINA ET AL) 23 February 1999 (23-02-99), see in particular abstract and claims.    Variable   Variab			d by classification symbols;	
C. DOCUMENTS CONSIDERED TO BE RELEVANT  Category*  Citation of document, with indication, where appropriate, of the relevant passages  Relevant to claim No  Y US 5,874,256 A (BERTINA ET AL) 23 February 1999 (23-02-99),  1-21,30-33, 35,43 51,53-58,69 78,83-84,86,94 102,104-109,120 12 9 , 1 3 4 135,137,145 153,155-160,171 183  See in particular abstract and claims.  ***  ***  ***  ***  ***  ***  ***		n minimum documentation to	the extent that such documents are	included in the fields
See in particular abstract and claims.   See in particular abstract and claims.		ing the international search (n	name of data base and, where practicabl	e, search terms used)
Y  US 5,874,256 A (BERTINA ET AL) 23 February 1999 (23-02-99), see in particular abstract and claims.	C. DOCUMENTS CONSIDER	RED TO BE RELEVANT		
See in particular abstract and claims.   51,53-58,69   78,83-84,86,94   102,104-109,120   12 9 , 13 4   135,137,145   153,155-160,171   183	Category Citation of docum	ent, with indication, where ap	propriate, of the relevant passages	Relevant to claim No.
Special categories of cited documents  "A" document defining the general state of the art which is not considered to be of particular relevance  "E" earlier document published on or after the international filing date  "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)  "O" document referring to an oral disclosure, use, exhibition or other means  "P" document published prior to the international filing date but later than the priority date claimed  Date of the actual completion of the international search  14 NOVEMBER 2000  Name and mailing address of the ISA/US  Commissioner of Patents and Trademarks  MARIANNE P. ALLEN  "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone  document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is taken alone  "T"  document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is taken alone  "T"  document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is taken alone  "T"  document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is taken alone  "T"  document of particular relevance; the claimed invention cannot be considered to involve a			3 February 1999 (23-02-99),	1-21,30-33, 35,43-51,53-58,69-78,83-84,86,94-102,104-109,120-129,134-135,137,145-153,155-160,171-183
"A" document defining the general state of the art which is not considered to be of particular relevance  "E" earlier document published on or after the international filing date  "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)  "O" document referring to an oral disclosure, use, exhibition or other means  "P" document published prior to the international filing date but later than the priority date claimed  Date of the actual completion of the international search  14 NOVEMBER 2000  Name and mailing address of the ISA/US  Commissioner of Patents and Trademarks  Box PCT  document defining the general state of the art which is not considered to the considered to invention and the principle or theory underlying the invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone  "Y"  document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document be considered to involve an inventive step when the document with one or more other such documents, such combination being obvious to a person skilled in the art  document member of the same patent family  Date of mailing of the international search report  23 FEB 2001  Authorized officer  MARIANNE P. ALLEN	X Further documents are lister	d in the continuation of Box (	C. See patent family annex.	
"A" document defining the general state of the art which is not considered to be of particular relevance to be of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone  "U" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)  "O" document referring to an oral disclosure, use, exhibition or other means  "P" document published prior to the international filing date but later than the priority date claimed  Date of the actual completion of the international search  Date of mailing of the international search report  23 FEB 2001  Name and mailing address of the ISA/US  Commissioner of Patents and Trademarks  Box PCT  The document published on or after the international filing date but later than the priority date claimed invention cannot be considered to involve an inventive step when the document is taken alone  document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is taken alone  document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone  """  document published prior to the international filing date but later than the priority date claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is combined with one or more other such document is taken alone  """  document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such document is taken alone  "T"  document of particular relevance; the claimed invention cannot be considered to involve an inventive ste	<ul> <li>Special categories of cited docum</li> </ul>	enta:		
"It" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)  "O" document referring to an oral disclosure, use, exhibition or other means  "P" document published prior to the international filing date but later than the priority date claimed  Date of the actual completion of the international search  14 NOVEMBER 2000  Name and mailing address of the ISA/US  Commissioner of Patents and Trademarks  Box PCT  Considered novel or cannot be considered to involve an inventive step when the document is taken alone  document of particular relevance; the claimed inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art  document member of the same patent family  Date of mailing of the international search report  23 FEB 2001  Authorized officer  MARIANNE P. ALLEN		ste of the art which is not considered		
cited to establish the publication date of another citation or other special reason (as specified)  "O" document referring to an oral disclosure, use, exhibition or other means  "P" document published prior to the international filing date but later than the priority date claimed  Date of the actual completion of the international search  14 NOVEMBER 2000  Name and mailing address of the ISA/US Commissioner of Patents and Trademarks  Box PCT  Commissioner of Patents and Trademarks  Commissioner of Patents and Trademarks  Marianne P, Allen	"E" earlier document published on or	after the international filing date	considered novel or cannot be considered	
document referring to an oral disclosure, use, exhibition or other means  "P" document published prior to the international filing date but later than the priority date claimed  Date of the actual completion of the international search  14 NOVEMBER 2000  Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT  Commissioner of Patents and Trademarks Commissioner of Patents and C	cited to establish the publication			e claimed invention cannot be
Date of the actual completion of the international search  14 NOVEMBER 2000  Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT  Commissioner of Patents and Trademarks Commissioner of Patents and Commissioner	"O" document referring to an oral	disclosure, use, exhibition or other	with one or more other such docus	ments, such combination being
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT  Authorized officer  Authorized officer  MARIANNE P. ALLEN		international filing date but later	"&" document member of the same patent	family
Commissioner of Patents and Trademarks Box PCT  MARIANNE P. ALLEN	•	ne international search	Date of mailing of the international so 23 FEB 20	earch report
Facsimile No. (703) 305-3230 Telephone No. (703) 308-0196	Commissioner of Patents and Tradem Box PCT Washington, D.C. 20231		MARIANNE P. ALLEN	ice for

C (Continue	ntion). DOCUMENTS CONSIDERED TO BE RELEVANT	
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,773,220 A (DEKOSKY ET AL) 30 June 1998 (30-06-98), see in particular abstract and claims.	1-21,30-33,35,43- 51,53-58,69-78,83- 84,86,94-102,104- 109,120-129,134- 135,137,145-15 3,155-160,171-183
Y,P	US 5,972,614 A (RUANO ET AL) 26 October 1999 (26-10-99), see in particular abstract; claims; column 6, lines 33-55; column 12, lines 10-25.	1-21,30-33,35,43- 51,53-58,69-78,83- 84,86,94-102,104- 109,120-129,134- 135,137,145-15 3,155-160, 171-183
<b>У</b> , Р	US 6,022,683 A (POIRIER) 08 February 2000 (08-02-00), see in particular abstract and claims.	1-21,30-33,35,43- 51,53-58,69-78,83- 84,86,94-102,104- 109,120-129,134- 135,137,145- 153,155-160, 171- 183
<b>У,</b> Р	US 6,043,040 A (ACTON) 28 March 2000 (28-03-00), see in particular abstract, claims, and columns 49-59.	1-21,30-33,35,43- 51,53-58,69-78,83- 84,86,94-102,104- 109,120-129,134- 135, 137,145- 153,155-160,171- 183
Y	US 5,648,482 A (MEYER) 15 July 1997 (15-07-97), see in particular abstract, claims, and columns 23-26.	1-21,30-33,35,43- 51,53-58,69- 78,8384,86,94- 102,104-109,120- 129,134-135,1 37,145-153,155- 160,171-183
<b>У,</b> Р	US 6,030,778 A (ACTON ET AL) 29 February 2000 (29-02-00), see in particular abstract, claims, and columns 25-30.	1-21,30-33, 35,43- 51,53-58,69-78,83- 84,86,94-102,104- 109,120-129,134- 135,137,145- 153,155-160,171- 183

C (Continua	tion). DOCUMENTS CONSIDERED TO BE RELEVANT	
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
Y	KLEYN et al. Genetic Variation as a Guide to Drug Development. Science. 18 September 1998, Vol. 281, pages 1820-1821, see entire document.	1-21,30-33,35,43-51,53-58,69-78,83-84,86,94-102,104-109,120-129,134-135,137,145-153,155-160,171-183
Y	MORI et al. HLA Gene and Haplotype Frequencies in the North American Population. Transplantation. 15 October 1997, Vol. 64, No. 7, pages 1017-1027, see entire document.	1-21,30-33,35,43-51,53-58,69-78,83-84,86,94-102,104-109,120-129,134-135,137,145-153,155-160,171-183
Y	MORI et al. Computer program to predict likelihood of finding an HLA-matched donor: Methodology, validation, and application. Biology of Blood and Marrow Transplantation. October 1996, Vol. 2, pages 134-144, see entire document.	1-21,30-33,35,43- 51,53-58,69-78,83- 84,86,94-102,104- 109,120-129,134- 135,137,145- 153,155-160,171- 183
<b>Y</b>	MATISE, T. C. Genome Scanning for Complex Disease Genes Using the Transmission/Disequilibrium Test and Haplotype-based Haplotype Relative Risk. Genetic Epidemiology. 1995, Vol. 12, No. 6, pages 641-645, see entire document.	121,30-33,35,43- 51,53-58,69-78,83- 84,86,94-102,104- 109,120-129,134- 135,137,145- 153,155-160,171- 183
Y	COOPER et al. Network Analysis of Human Y Microsatellite Haplotypes. Human Molecular Genetics. 1996, Vol. 5, No. 11, pages 1759-1766, see entire document.	1-21,30-33,35,43-51,53-58,69-78,83-84,86,94-102,104-109,120-129,134-135,137,145-153,155-160,171-183
Y	GENE et al. Haplotype frequencies of eight Y-chromosome STR loci in Barcelona (North-East Spain). International Journal of Legal Medicine. 1999, Vol. 112, pages 403-405, see entire document.	1-21,30-33,3543,- 51,53-58,69-78,83- 84,86,94-102,104- 109,120-129,134- 135,137,145- 153,155-160,171- 183

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CLARK et al. Haplotype Structure and Population Genetic Inferences from Nucleotide-Sequence Variation in Human Lipoprotein Lipase. American Journal of Human Genetics. 1998, Vol. 63, pages 595-912, see entire document.	1-21,30-33,35,43-51,53-58,69-78,83-84,86,94-102,104-109,120-129,134-135,137,145-153,155-160,171-183
Y	CASHMAN et al. The Irish cystic fibrosis database. Journal of Medical Genetics. 1995, Vol. 32, No. 12, pages 972-975, see entire document.	1-21,30-33,35,43- 51,53-58,69-78,83- 84,86,94-102,104- 109,120-129,134- 135,137,145- 153,155-160,171- 183
Ү, Р	TISHKOFF et al. The Accuracy of Statistical Methods for Estimation of Haplotype Frequencies: An Example from the CD4 Locus. American Journal of Human Genetics. August 2000, Vol. 67, No. 2, pages 518-522, see entire document.	1-21,30-33,35,43- 51,53-5869-78, 83- 84,86,94-102,104- 109,120-129,134- 135,137,145- 153,155-160,171- 183
<b>Y</b>	PERLIN et al. Toward Fully Automated Genotyping: Allele Assignment, Pedigree Construction, Phase Determination, and Recombination Detection in Duchenne Muscular Dystrophy. American Journal of Human Genetics. 1994, Vol. 55, No.4, pages 777-787, see entire document.	1-21,30-33,35,43- 51,53-58,69-78,83- 84,86,94-102,104- 109,120-129,134- 135,137,145- 153,155-160,171- 183
Y	HOANG et al. PAH Mutation Analysis Consortium Database: A Database for Disease-producing and Other Allelic Variation at the Human PAH Locus. Nucleic Acids Research. 1996, Vol. 24, No. 1, pages 127-131, see entire document.	1-21,30-33,35,43-51,53-58,69-78,83-84,86,94-102,104-109,120-129,134-135,137,145-153,155-160, 171-183
<b>У</b> , Р	STEPHENS et al. Single-nucleotide Polymorphisms, Haplotypes, and Their Relevance to Pharmacogenetics. Molecular Diagnosis. December 1999, Vol. 4, No. 4, pages 309-317, see entire document.	1-21,30-33,35,43-51,53-58,69-78,83-84,86,94-102,104-109,120-129,134-135,137,145-153,155-160, 171-183

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#### B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

DIALOG (files 5, 155) and EAST (files U.S. Patents, European abstracts, Japanese abstracts, and Derwent) search terms: pharmacogenomic, pharmacogenetic, haplotype, genotype, database, computer, clinical trial, population genetics, polymorphism, SNP, Hardy-Weinberg, Mendelian, linkage, phylogenetic, pedigree, locus, gene, phased, unphased

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING This ISA found multiple inventions as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claim(s)1-8, 69-72, and 120-124, drawn to a method of generating a haplotype database, computer-usable medium, and computer programmed therefore.

Group II, claim(s) 9-12 and 75, drawn to a method of predicting the presence of a haplotype and computer-usable medium therefore.

Group III, claim(s) 15-21, 74-78, and 125-129, drawn to a method of identifying correlation between haplotype pair and clinical response, computer-usable medium, and computer programmed therefore.

Group IV, claim(s) 22-29, 79-82, 150-153, drawn to a method for determining susceptibility to a condition/disease, computer-usable medium, and computer programmed therefore.

Group V, claim(s) 30-33, 83-84, and 134-135, drawn to a method for predicting response to treatment, computer-usable medium, and computer programmed therefore.

Group VI, claim(s) 34, 85, and 156, drawn to a method for generating a tree structure, computer-usable medium, and computer programmed therefore.

Group VII, claim(s) 35, 86, and 137, drawn to a method for displaying haplotype pair frequency, computer-usable medium, and computer programmed therefore.

Group VIII, claim(s) 36-37, 87-88, and 158-139, drawn to a method for displaying a linkage screen, computer-usable medium, and computer programmed therefore.

Group IX, claim(s) 58-40, 89-91, and 140-142, drawn to a method for displaying a phylogenetic tree screen, computerusable medium, and computer programmed therefore.

Group X, claim(s) 41-42, 92-93, and 145-144, drawn to a method for displaying genotypic analysis, computer-usable medium, and computer programmed therefore.

Group XI, claim(s) 43-51, 94-102, and 145-153, drawn to a method to displaying clinical response values, computerusable medium, and computer programmed therefore.

Group XII, claim(s) 52, 103, and 154, drawn to a method for carrying out a genetic algorithm, computer-usable medium, and computer programmed therefore.

Group XIII, claim(s) 55, 104, and 155, drawn to a method for displaying correlations, computer-usable medium, and computer programmed therefore.

Group XIV, claim(s) 54-55, 105-106, and 156-157, drawn to a method for conducting a clinical trial, computer-usable medium, and computer programmed therefore.

Group XV, claim(s) 56-58, 107-109, and 158-160, drawn to a method for inferring genotype, computer-usable medium, and computer programmed therefore.

Group XVI, claim(s) 59-68, 110-119, and 161-170, drawn to a method of determining polymorphic sites or subhaplotypes, computer-usable medium, and computer programmed therefore.

Group XVII, claim(s) 171-175 and 183, drawn to a data structure.

Group XVIII, claim(s) 176-182, drawn to a method for storing and organizing biological information.

The inventions listed as Groups I-XVIII do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The special technical feature of each method is the starting materials, method steps, and goal of each method. The corresponding computer-usable medium and computer programmed therefore form part of the inventive concept with each method. Note that PCT Rule 13 does not provide for multiple methods or products.

#### NOTES TO FORM PCT/ISA/220 (continued)

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

- 1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
  "Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
- [Where originally there were 15 claims and after amendment of all claims there are 11]:
   "Claims 1 to 15 replaced by amended claims 1 to 11."
- [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
   "Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
   "Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
- 4. [Where various kinds of amendments are made]:

  "Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

#### "Statement under Article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

The statement should be brief, it should not exceed 500 words if in English or if arenslated into English.

It should not be confounded with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It should not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

#### In what language?

The amendments must be made in the language in which the international application is published. The letter and any statement accompanying the amendments must be in the same language as the international application if that language is English or French; otherwise, it must be in English or French, at the choice of the applicant.

#### Consequence if a demand for international preliminary examination has already been filed?

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

#### Consequence with regard to translation of the international application for entry into the national phase?

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.